

Title (en)
SOLAR CELL AND SOLAR-CELL MODULE

Title (de)
SOLARZELLE UND SOLARZELLENMODUL

Title (fr)
CELLULE SOLAIRE ET MODULE CELLULE SOLAIRE

Publication
EP 2650923 A1 20131016 (EN)

Application
EP 11846590 A 20111201

Priority
• JP 2010271619 A 20101206
• JP 2011077784 W 20111201

Abstract (en)
A solar cell wherein: an emitter layer is formed on a light-receiving-surface side of a crystalline silicon substrate, with a dopant of the opposite conductivity type from the silicon substrate added to said emitter layer; a passivation film is formed on the surface of the silicon substrate; and an extraction electrode and a collector electrode are formed. Said extraction electrode extracts photogenerated charge from the silicon substrate, and said collector electrode contacts the extraction electrode at least partially and collects the charge collected at the extraction electrode. The extraction electrode contains a first electrode that consists of a sintered conductive paste containing a dopant that makes silicon conductive. Said first electrode, at least, is formed so as to pass through the abovementioned passivation layer. The collection electrode contains a second electrode that has a higher conductivity than the aforementioned first electrode. This invention reduces contact-resistance losses between the silicon and the electrodes, resistance losses due to electrode resistance, and optical and electrical losses in the emitter layer, thereby greatly improving the characteristics of the solar cell.

IPC 8 full level
H01L 31/04 (2006.01)

CPC (source: EP KR US)
H01L 31/02167 (2013.01 - EP US); **H01L 31/022425** (2013.01 - EP US); **H01L 31/042** (2013.01 - KR); **H01L 31/068** (2013.01 - EP US); **H01L 31/1804** (2013.01 - EP US); **H01L 31/1868** (2013.01 - US); **Y02E 10/547** (2013.01 - EP US); **Y02P 70/50** (2015.11 - EP US)

Cited by
EP4167298A1

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)
EP 2650923 A1 20131016; EP 2650923 A4 20171122; EP 2650923 B1 20210602; CA 2820002 A1 20120614; CN 103329280 A 20130925; CN 103329280 B 20170208; JP 5541370 B2 20140709; JP WO2012077567 A1 20140519; KR 101917879 B1 20181113; KR 20130138285 A 20131218; MY 170106 A 20190705; RU 2013131015 A 20150120; RU 2571444 C2 20151220; SG 191044 A1 20130830; TW 201240115 A 20121001; TW I587534 B 20170611; US 2013247957 A1 20130926; US 2016079466 A1 20160317; US 9887312 B2 20180206; WO 2012077567 A1 20120614

DOCDB simple family (application)
EP 11846590 A 20111201; CA 2820002 A 20111201; CN 201180065728 A 20111201; JP 2011077784 W 20111201; JP 2012547809 A 20111201; KR 20137017430 A 20111201; MY PI2013002043 A 20111201; RU 2013131015 A 20111201; SG 2013043831 A 20111201; TW 100144862 A 20111206; US 201113991978 A 20111201; US 201514921473 A 20151023